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Reporting Data with “Over-the-Counter” Data Analysis Supports

Improves Educators’ Data Analyses

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Reporting Data with “Over-the-Counter” Data Analysis Supports Improves Educators’ Data Analyses

Abstract: The benefits of making data-informed decisions to improve learning rely on educators correctly interpreting given data. Many educators routinely misinterpret data, even at districts with proactive support for data use. The tool most educators use for data analyses, which is an information technology data system or its reports, typically reports data *without* guidance concerning the data’s proper analysis. A solution to data misinterpretation lies in applying medical labeling conventions to information technology to essentially offer educators *over-the-counter* data, meaning reports are paired with straightforward verbiage on the proper interpretation of contents. Findings from a quantitative study involving 211 educators of varied backgrounds and roles at nine schools throughout California included improvements to respondents’ data analysis accuracy by 205%-436% when one of varied forms of data analysis guidance was embedded within the information technology reporting environment. Findings were significant and can be used to improve data systems and data use.

Introduction and Theoretical Framework

Over-the-counter medication is deemed negligent if not accompanied by textual guidance proven to improve its use (DeWalt 2010). No or poor medication labels have resulted in many errors and tragedy, as people are left with no way to know how to use the contents wisely (Brown-Brumfield & DeLeon 2010). Labeling conventions such as those used for over-the-counter medication can translate to improved understanding and use of non-medication products, as well (Hampton 2007; Qin et al. 2011).

Thus, in the way over-the-counter medicine’s proper use is communicated with a thorough label and added documentation, an information technology system used to generate student data can include components to help users better comprehend the data it contains. Yet such data systems currently display data for educators without sufficient support to use their contents – data – wisely (Coburn, Honig, & Stein 2009; Data Quality Campaign [DQC] 2009, 2011; Goodman & Hambleton 2004; National Forum on Education Statistics 2011).

A *data system* is a computer system meant to provide educators with student data to help solve educational problems (Wayman, 2005). Examples of data systems include student information systems (SISs), assessment systems, instructional management systems (IMSs), and data-warehousing systems, but distinctions between different types of data systems are blurring as these separate information technology systems begin to serve more of the same functions (Bill and Melinda Gates Foundation, 2007).

Labeling and tools within data systems to assist analyses are uncommon, even though most educators analyze data while unaccompanied by someone who can help them use the data appropriately (U.S. Department of Education Office of Planning, Evaluation and Policy Development [USDEOPEPD] 2009). Essentially, data systems do not commonly present data in an “over-the-counter” format that offers educators guidance in the report contents’ use. For educators, whose primary purpose for using data is to treat students, using data without embedded support is akin to using medicine from an unmarked or marginally marked container. This study considered the impact on educators’ data analyses if data systems provided data in an *over-the-counter* format, meaning data usage guidance was embedded within the reporting environment.

Problem

Educators make data analysis errors impacting students, yet data systems do not include analysis help, and it was undecided whether adding supports to data systems can reduce the number of analysis errors. Data-informed decisions can lead to improved learning (Sabbah 2011; Underwood, Zapata-Rivera, & VanWinkle 2010; Wohlstetter, Datnow, & Park 2008). Most educators have access to data systems to generate and analyze score reports (Aarons 2009; Herbert 2011). Educators worldwide are expected to use these reports to make decisions that impact student learning (Hattie & Brown 2008).

Unfortunately, educators do not use this data correctly, and there is evidence many users of data system reports have trouble understanding the data (Hattie 2010; National Research Council 2001; Wayman, Snodgrass Rangel, Jimerson, & Cho 2010; Zwick et al. 2008). For example, in two national studies of districts known for *strong* data use, teachers' accuracy when interpreting data was only 48% correct and it is unlikely other school districts would perform any better (USDEOPEPD, 2009, 2011).

Few teacher preparation programs cover topics like assessment data literacy (Halpin & Cauthen 2011), most people analyzing data received *no* training to do so (DQC 2009; Few 2008), and human biases compromise judgment and complicate decision-making processes (Kahneman 2011). Even when professional development and added staffing are employed to improve data use, these supports require added resources and – though generally beneficial – are not foolproof. For example, in a study where teachers received PD in measurement, all teachers struggled afterwards with statistical terms and measurement concepts (Zapata-Rivera & VanWinkle, 2010). Also, knowledge management research indicated knowledge is hard to share with others, even when the intention to share it is there, especially when power or status is involved (Cho & Wayman, 2009).

Data use impacts students, and misunderstandings when using data systems can cripple data use in school districts (Wayman, Cho, & Shaw 2009). Yet labeling and tools within data systems to assist analysis are uncommon, even though most educators analyze data alone (USDEOPEPD 2009). There is a clear need for research identifying how reports can better facilitate correct interpretations by its users (Goodman & Hambleton 2004; Hattie 2010). The power of data systems that generate these reports will not be realized until researchers contribute to improving data system design to improve analysis (DQC 2011).

Methods and Purpose

The purpose of the experimental, quantitative study was to facilitate causal inferences concerning the degree to which including different forms of data usage guidance within a data system reporting environment can improve educators' understanding of the data contents, much like including different forms of usage guidance with over-the-counter medication is needed to improve use of contents. The study's primary independent variables included the following types of data analysis guidance, each of which was framed in two different formats and was used with two reports per study participant to answer four data analysis-based questions of varied complexity:

- **Footer:** A report footer is a brief set of text at the bottom of a report that communicates information an educator would need to know to correctly understand and analyze that particular report's data. The study's footers ranged from 34-58 words, 156-269 characters without spaces, and 224-324 characters with spaces. Footers were either monochromatic or contained minimal color used purposefully; for example, "Warning" was featured in red and "What to Do" was featured in green.
- **Reference Sheet:** A report-specific reference sheets, also called an abstract, is a single page that accompanies a report to help the educator more easily understand the report and analyze its data. The study's reference sheets contained the report's title, description, image, focus (content reported), and warning (vital, cautionary information an educator would need to avoid the most common analysis errors made when analyzing the particular data being displayed). Half of the study's sheets also communicated the report's purpose (key questions the report will help answer) and additional focus information (intended audience, and format in which data is reported).
- **Reference Guide:** A reference guide, also called an interpretation guide, is a 2- or 3-page reference guide that accompanies a report to help the educator more easily use the report and analyze its data. The study's guides adhered to either of two formats: (a) the report's reference sheet (as described above) functioned as the guide's 1st page, and pages followed containing the report's instructions (how to read the report), essential questions (showing the user where to look on this report – and what to look for – to answer each question listed in the purpose area of the guide's 1st page), and a "more info" section (offering where to get additional information on related topics); or (b) the guide contained the

report's title, description, warning, essential questions, and a "more info" section (details for these sections was provided earlier in article).

The dependent variable was accuracy of data analysis-based responses, measured by a survey containing data analysis questions. 211 elementary and secondary educators throughout California answered these questions while viewing one of seven report sets of student data (Fig. 1-7).

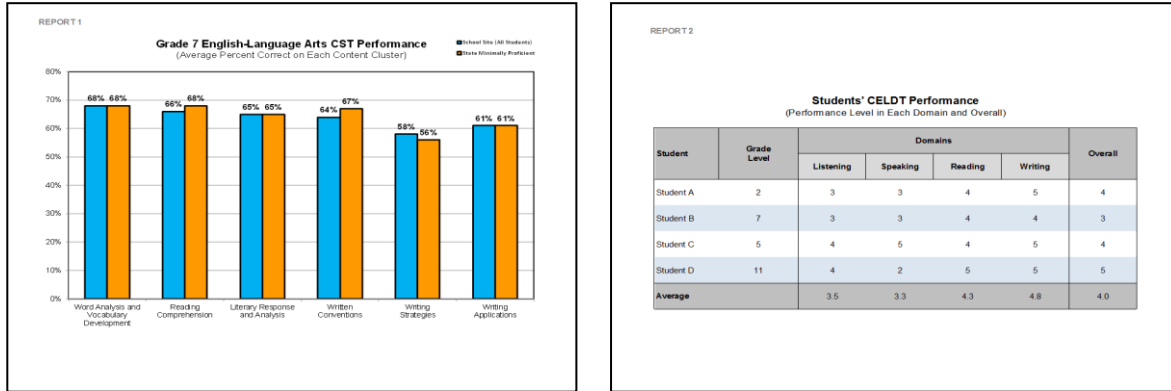


Figure 1: Scenario 1 Participant (Control Group) Handouts; No Supports Were Received

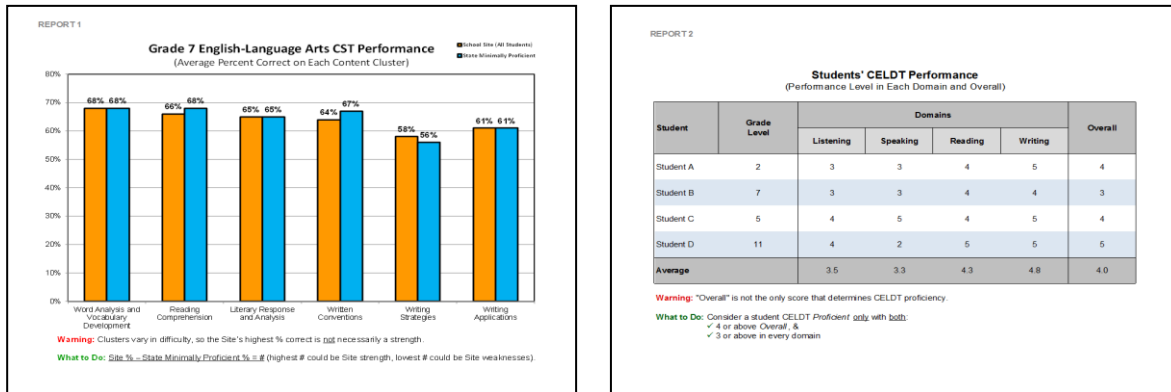


Figure 2: Scenario 2 (Footer A) Participant Handouts; Note Footer/Support at Bottom of Page

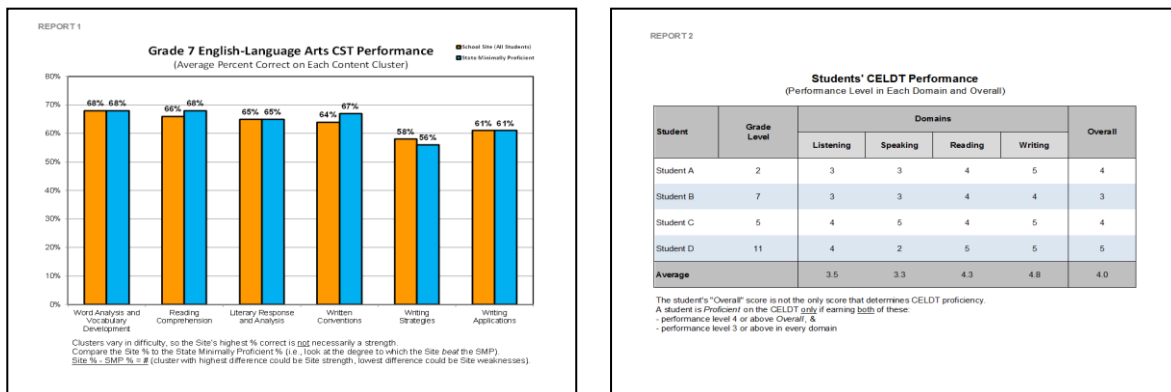


Figure 3: Scenario 3 (Footer B) Participant Handouts; Note Footer/Support at Bottom of Page

CST Performance Report Abstract

This page provides an abstract for the CST Performance report, which shows a school site's performance on California Standards Test (CST) content clusters in relation to the state's performance scores of students statewide who scored Proficient on the CST.

Focus What data is reported?
 Students' average % correct when answering questions aligned to each CST content cluster is displayed for:
 • a school site
 • the State Minimally Proficient (meaning all students in California who scored the minimum scale score needed - 350 - to be considered Proficient on the CST)

Warning What do many educators misunderstand?
 Content clusters vary in difficulty, so a site's highest % correct for a cluster does not necessarily indicate its strength, and its lowest % correct for a cluster is not necessarily its weakness. For each cluster, compare the Site % to the State Minimally Proficient % (i.e., look at the degree to which the Site beats the State Minimally Proficient). Use the formula:
 $School\ Site\ \% - State\ Minimally\ Proficient\ \% = \#$
 The cluster with the highest difference (highest # from above formula) could be a Site strength, and the cluster with the lowest difference (lowest # from above formula) could be a Site weakness.

Students' CELDT Performance Abstract

This page provides an abstract for the Students' CELDT Performance report, which shows English Learner's scores on the California English Language Development Test (CELDT), which determines which students should be considered for reclassification as Fluent English Proficient (FEP).

Focus What data is reported?
 Each English learner who took the CELDT is listed with grade level, proficiency level for each domain, and Overall proficiency level.

Warning What do many educators misunderstand?
 The Overall score does not, alone, determine CELDT proficiency. A grade 2-12 student is Proficient on the CELDT if earning 3 of these:
 • performance level 3 or above Overall
 • performance level 3 or above every domain
 Kindergarten and grade 1 students only have to meet these criteria for Listening, Speaking, and Overall in order to score Proficient.

Figure 4: Scenario 4 Participant (Reference Sheet A) Handouts; Participants Also Received Figure 1 Handouts

CST Performance Report Abstract

This page provides an abstract for the CST Performance report, which shows a school site's performance on California Standards Test (CST) content clusters in relation to the state's performance (scores of students statewide who scored Proficient on the CST).

Purpose What are some questions this report will help answer?
 • What are possible weaknesses for my school site (in a grade and subject area)?
 • What are possible strengths for my school site (in a grade and subject area)?
 • Which content clusters were assessed with the hardest questions on this CST?
 • Which content clusters were assessed with the easiest questions on this CST?

Focus Who is the intended audience?
 Teachers and administrators

What data is reported?
 Students' average % correct when answering questions aligned to each CST content cluster is displayed for:
 • a school site
 • the State Minimally Proficient (meaning all students in California who scored the minimum scale score needed - 350 - to be considered Proficient on the CST)

How is the data reported?
 The school site is graphed in blue, and the State Minimally Proficient is graphed in orange.

Warning What do many educators misunderstand?
 Content clusters vary in difficulty, so a site's highest % correct for a cluster does not necessarily indicate its strength, and its lowest % correct for a cluster is not necessarily its weakness. For each cluster, compare the Site % to the State Minimally Proficient % (i.e., look at the degree to which the Site beats the State Minimally Proficient). Use the formula:
 $School\ Site\ \% - State\ Minimally\ Proficient\ \% = \#$
 The cluster with the highest difference (highest # from above formula) could be a Site strength, and the cluster with the lowest difference (lowest # from above formula) could be a Site weakness.

Students' CELDT Performance Abstract

This page provides an abstract for the Students' CELDT Performance report, which shows English Learner's scores on the California English Language Development Test (CELDT), which determines which students should be considered for reclassification as Fluent English Proficient (FEP).

Purpose What are some questions this report will help answer?
 • Which students scored Proficient on the CELDT?
 • Which scores prevented students from earning Proficiency?
 • How did this class or program of students perform on the CELDT and in each of its domains?

Focus Who is the intended audience?
 Teachers, administrators, and ELL coordinators

What data is reported?
 Each English learner who took the CELDT is listed with grade level, proficiency level for each domain, and Overall proficiency level.

How is the data reported?
 Students in a class or program are listed with their scores. A final row averages all the scores in each domain and Overall.

Warning What do many educators misunderstand?
 The Overall score does not, alone, determine CELDT proficiency. A grade 2-12 student is Proficient on the CELDT if earning 3 of these:
 • performance level 3 or above Overall
 • performance level 3 or above every domain
 Kindergarten and grade 1 students only have to meet these criteria for Listening, Speaking, and Overall in order to score Proficient.

Figure 5: Scenario 5 Participant (Reference Sheet B) Handouts; Participants Also Received Figure 1 Handouts

CST Performance Report Interpretation Guide

Warning What do many educators misunderstand?
 Content clusters vary in difficulty, so a site's highest % correct for a cluster does not necessarily indicate its strength, and its lowest % correct for a cluster is not necessarily its weakness. For each cluster, compare the Site % to the State Minimally Proficient % (i.e., look at the degree to which the Site beats the State Minimally Proficient). Use the formula:
 $School\ Site\ \% - State\ Minimally\ Proficient\ \% = \#$
 The cluster with the highest difference (highest # from above formula) could be a Site strength, and the cluster with the lowest difference (lowest # from above formula) could be a Site weakness.

Essential Questions What are possible weaknesses for my school site (in a grade and subject area)?
 Determine the cluster in which the Site's % correct is below the State Minimally Proficient % (students to the right of the orange bar). Look for the cluster with the lowest % correct for the Site. Use the formula:
 $School\ Site\ \% - State\ Minimally\ Proficient\ \% = \#$
 Example: For the Algebra cluster, $School\ Site\ \% - State\ Minimally\ Proficient\ \% = 25$
 This means for the Algebra cluster, the Site's % correct is 25% below the State Minimally Proficient % (because of how Site compared to S.M.P.). The Algebra cluster is most likely Site's weakness, even though the Site % for Algebra was not its lowest %.

What are possible strengths for my school site (in a grade and subject area)?
 Determine the cluster in which the Site's % correct is above the State Minimally Proficient % (students to the left of the orange bar). Look for the cluster with the highest % correct for the Site. Use the formula:
 $School\ Site\ \% - State\ Minimally\ Proficient\ \% = \#$
 Example: For the Measurement cluster, $School\ Site\ \% - State\ Minimally\ Proficient\ \% = 15$
 This means for the Measurement cluster, the Site's % correct is 15% above the State Minimally Proficient % (because of how Site compared to S.M.P.). The Measurement cluster is most likely Site's strength, even though the Site's % for Measurement was not its highest %.

More Info Where can I find more info on the CST and its proper analysis?
 Reference Chapter 2 of the California Standardized Testing and Reporting (CST) Test-Taker Guide at <http://www.ctstesting.org/ctst-test-taker>.

Where can I find more info on analyzing CST content clusters?
 Visit the Help system's Deep Analysis manual.

Where can I learn how to generate this report in my system?
 Visit the Help system's Reports manual.

Students' CELDT Performance Interpretation Guide

Warning What do many educators misunderstand?
 The Overall score does not, alone, determine CELDT proficiency. A grade 2-12 student is Proficient on the CELDT if earning 3 of these:
 • performance level 3 or above Overall
 • performance level 3 or above every domain
 Kindergarten and grade 1 students only have to meet these criteria for Listening, Speaking, and Overall in order to score Proficient.

Essential Questions Which students scored Proficient on the CELDT?
 To determine which students scored Proficient on the CELDT, determine which students earned 3 or above in every domain.

Example: Ashley is not Proficient because of her 2 in Reading.
Example: Victor is not Proficient because of his 3 Overall.

Example: One student is Proficient because of her 3 in Overall and 3 or above in Listening and Speaking and her 2 in Reading Overall. Because she is kindergarten her 2 in Reading is not considered.

Which scores prevented students from earning Proficiency?
 Students in 2 or 3 in the Domain are prevented from earning 3 students' Reading and Writing scores.
Example: All but the Speaking domain scored students in the program to not earn Proficiency.

How did this class or program of students perform on the CELDT and in each of its domains?
 Reference the bottom row to view class or program averages.

Example: The program's average of 3 for (Speaking) was higher for all the domains, whereas 2.5 for Reading was its lowest. This program's Overall average was 3.3.

More Info Where can I find more info on the CELDT?
 Visit <http://www.cde.ca.gov/elp/elp/> for resources.

Where can I find more info on analyzing CELDT performance?
 Visit the Help system's Deep Analysis manual.

Where can I learn how to generate this report in my data system?
 Visit the Help system's Reports manual.

What takes the CELDT and when?
 All students whose home language is not English must test within 30 calendar days of arriving in a California public school to determine classification as Fluent English Proficient (FEP) or English learner (EL). Students must test every year thereafter until they are Reclassified as Fluent English Proficient (FEP).

What do the performance levels mean?
 1 = Beginning, 2 = Early Intermediate, 3 = Intermediate, 4 = Early Advanced, 5 = Advanced

Figure 6: Scenario 6 Participant (Reference Guide A) Handouts; Participants Also Received Figure 1 Handouts

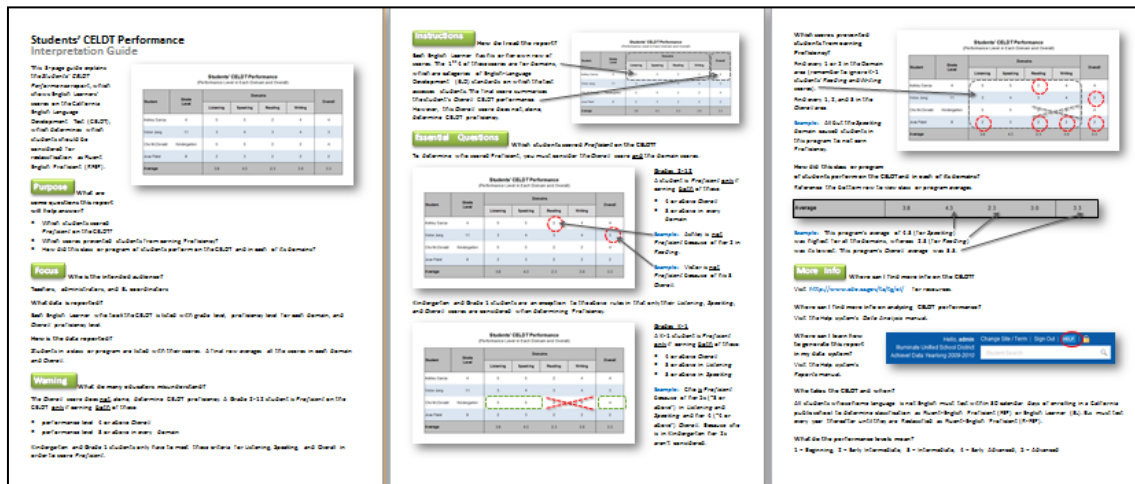
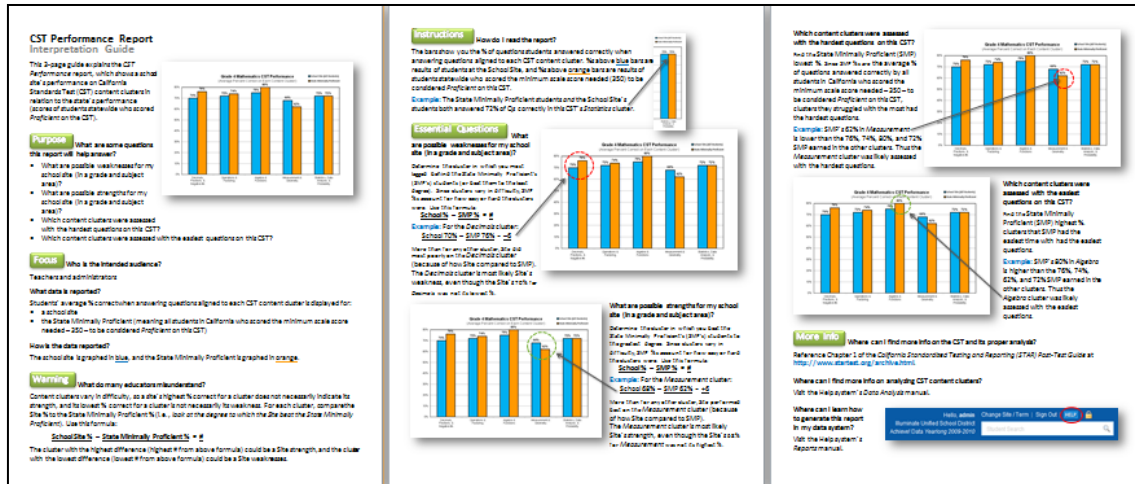


Figure 7: Scenario 7 Participant (Reference Guide B) Handouts; Participants Also Received Figure 1 Handouts

Findings

All supports used in the study had a significant, positive impact on educators' data analysis accuracy. Educators' data analyses were:

- 307% more accurate (with a 23 percentage point difference) when a footer was present and 336% more accurate (with a 26 percentage point difference) when respondents specifically indicated having used the footer,
- 205% more accurate (with a 12 percentage point difference) when a reference sheet was present and 300% more accurate (with a 22 percentage point difference) when respondents specifically indicated having used the reference sheet,
- 273% more accurate (with a 19 percentage point difference) when an
- reference guide was present and 436% more accurate (with a 37 percentage point difference) when respondents specifically indicated having used the guide, and

- 264% more accurate (with an 18 percentage point difference) when any one of the three supports was present and 355% more accurate (with a 28 percentage point difference) when respondents specifically indicated having used the support.

On average, the 211 study participants indicated they used supports 58% of the time:

- Respondents receiving footers indicated they used them 73% of the time, on average.
- Respondents receiving reference sheets indicated they used them 50% of the time, on average.
- Respondents receiving reference sheets indicated they used them 52% of the time, on average.

87% of participants who receive no supports indicated they would have used footers, reference sheets, or reference guides if the supports had been available.

When no supports were used, data analysis accuracy was 11%. All 211 participants, regardless of support use, averaged a data analysis accuracy of 26%. In cases where respondents indicated they used an available support, data analysis accuracy was 39%. See Fig. 8 for visual representation.

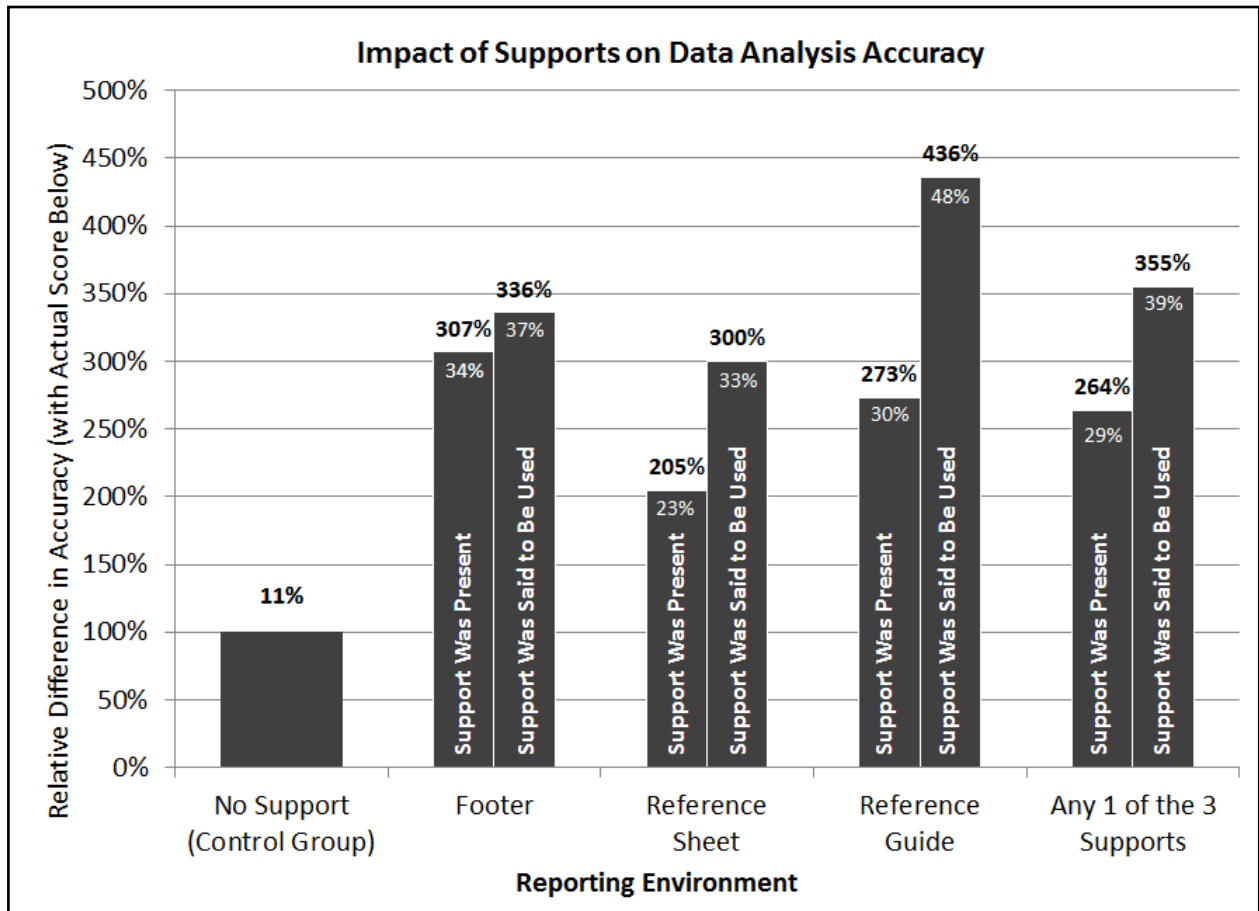


Figure 8: *Impact of Supports in Terms of Relative Difference*

Significance

The findings of this study filled a gap in education field literature by containing evidence that can be used to identify how data systems can help increase educators' data analysis accuracy by providing analysis support directly within the information technology and its reports. The study also rendered examples and templates for real-world implementation, which are available for free, open access, on the researcher's website. Improvements data system and report providers make in light of this study have potential to improve the accuracy with which educators analyze the data generated by their data systems. This improvement will likely benefit students impacted by educators' data-informed decision-making.

References

- Aarons, D. (2009). Report finds states on course to build pupil-data systems. *Education Week*, 29(13), 6. Retrieved from <http://search.proquest.com/docview/202710770?accountid=28180>
- Bill and Melinda Gates Foundation (2007). *Landscape review: Education data*. Retrieved from <http://www.gatesfoundation.org/learning/Documents/landscape-review-education-data.pdf>
- Brown-Brumfield, D., & DeLeon, A. (2010). Adherence to a medication safety protocol: Current practice for labeling medications and solutions on the sterile field. *Association of Operating Room Nurses*. AORN Journal, 91(5), 610-610-7. doi:10.1016/j.aorn.2010.03.002
- Cho, V., & Wayman, J. C. (2009, April). *Knowledge management and educational data use*. Paper presented at the 2009 Annual Meeting of the American Educational Research Association, San Diego, CA.
- Coburn, C. E., Honig, M. I., & Stein, M. K. (2009). What's the evidence on districts' use of evidence? In J. Bransford, D. J. Stipek, N. J. Vye, L. Gomez, & D. Lam (Eds.), *The role of research in educational improvement*, 67-88. Cambridge, MA: Harvard Education Press.
- Data Quality Campaign (2009). *The next step: Using longitudinal data systems to improve student success*. Retrieved from <http://www.dataqualitycampaign.org/find-resources/the-next-step/>
- Data Quality Campaign (2011). *Leveraging the power of state longitudinal data systems: Building capacity to turn data into useful information*. Retrieved from <http://www.dataqualitycampaign.org/files/DQC-Research%20capacity%20May17.pdf>
- DeWalt, D. A. (2010). Ensuring safe and effective use of medication and health care: perfecting the dismount. *The Journal of the American Medical Association (JAMA)*, 304(23), 2641-2642. doi: 10.1001/jama.2010.1844
- Few, S. (2008, November 14). Telling compelling stories with numbers: Data visualization for enlightening communication. *Statewide Longitudinal Data Systems (SLDS) Grant Program Third Annual Fall Grantee Meeting*. Presentation conducted from SLDS, Arlington, VA. Retrieved from http://nces.ed.gov/programs/slds/pdf/08_F_06.pdf
- Goodman, D. P., & Hambleton, R. K. (2004). Student test score reports and interpretive guides: Review of current practices and suggestions for future research. *Applied Measurement in Education*, 17(2), 145-220.
- Halpin, J., & Cauthen, L. (July 31, 2011). The education dashboard. *Center for Digital Education's Converge Special Report* 2(3), 2-36.
- Hampton, T. (2007). Groups urge warning label for medical devices containing toxic chemical. *The Journal of the American Medical Association (JAMA)*, 298(11), 1267. doi: 10.1001/jama.298.11.1267
- Hattie, J. (2010). Visibly learning from reports: The validity of score reports. *Online Educational Research Journal*. Also: Paper presented at the annual meeting of the National Council for Measurement in Education (NCME), San Diego, CA. Retrieved from <http://www.oerj.org/View?action=viewPaper&paper=6>
- Hattie, J. A. C., & Brown, G. T. L. (2008). Technology for school-based assessment and assessment for learning: Development principals from New Zealand. *Journal of Educational Technology Systems* 36(2), 189-201.
- Herbert, M. (2011). States on track to have top-notch data systems. *District Administration*, 47(4), 12. Norwalk, CT: Professional Media Group LLC.
- Kahneman, D. (2011). *Thinking, fast and slow*. New York, NY: Farrar, Straus and Giroux.
- National Forum on Education Statistics. (2011). *Traveling through time: The forum guide to longitudinal data systems. Book Four of Four: Advanced LDS Usage (NFES 2011-802)*. Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
- National Research Council (2001). *NAEP reporting practices: Investigating district-level and market-basket reporting*. Committee on NAEP Reporting Practices, Board on Testing and Assessment, Center for Education. Washington, DC: National Academy Press.
- Qin, Y., Wu, M., Pan, X., Xiang, Q., Huang, J., Gu, Z., & ... Zhou, M. (2011, February 25). Reactions of Chinese adults to warning labels on cigarette packages: a survey in Jiangsu Province. *BMC Public Health*, 11(133). doi: 10.1186/1471-2458-11-133
- Sabbah, F. M. (2011). Designing more effective accountability report cards. *ProQuest Dissertations and Theses*, AAT 3469488, Retrieved from <http://search.proquest.com/docview/893068662?accountid=28180>

- Underwood, J. S., Zapata-Rivera, D., & VanWinkle, W. (2010). *An evidence-centered approach to using assessment data for policymakers* (ETS Research Rep. No. RR-10-03). Princeton, NJ: ETS.
- U.S. Department of Education Office of Planning, Evaluation and Policy Development (2009). *Implementing data-informed decision making in schools: Teacher access, supports and use*. United States Department of Education (ERIC Document Reproduction Service No. ED504191)
- U.S. Department of Education Office of Planning, Evaluation and Policy Development (2011). *Teachers' ability to use data to inform instruction: Challenges and supports*. United States Department of Education (ERIC Document Reproduction Service No. ED516494)
- Wayman, J. C. (2005). Involving teachers in data-driven decision making: Using computer data systems to support teacher inquiry and reflection. *Journal of Education for Students Placed At Risk*, 10, no. 3: 295–308.
- Wayman, J. C., Cho, V., & Shaw, S. M. (2009, December). *First-year results from an efficacy study of the Acuity data system*. Paper presented at the Twenty-fourth Annual Texas Assessment Conference, Austin, TX.
- Wayman, J. C., Snodgrass Rangel, V. W., Jimerson, J. B., & Cho, V. (2010). *Improving data use in NISD: Becoming a data-informed district*. Austin, TX: The University of Texas at Austin.
- Wohlstetter, P., Datnow, A., & Park, V. (2008). Creating a system for data-driven decision-making: Applying the principal-agent framework. *School Effectiveness and School Improvement*, 19(3), 239–259.
- Zapata-Rivera, D., & VanWinkle, W. (2010). A research-based approach to designing and evaluating score reports for teachers (*ETS Research Memorandum No. RM-10-01*). Princeton, NJ: ETS.
- Zwick, R., Sklar, J., Wakefield, G., Hamilton, C., Norman, A., & Folsom, D. (2008). Instructional tools in educational measurement and statistics (ITEMS) for school personnel: Evaluation of three web-based training modules. *Educational Measurement: Issues and Practice*, 27, 14–27.

Acknowledgements

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